

Applicant : Feng Shi et al.  
Serial No. : 10/789,804  
Filed : February 27, 2004  
Page : 8 of 12

Attorney's Docket No.: 13854-065001

### REMARKS

Claims 1-23 are currently pending of which claims 1, 13, 17, 21, 22, and 23 are independent. Claims 1, 13, 17-21 and 23 are amended. No new matter is added. Reconsideration of the action mailed June 16, 2005, is requested in light of the foregoing amendments and the following remarks.

The Examiner rejected claim 21 under 35 U.S.C. § 112, first paragraph, as failing to comply with the enablement requirement. The Examiner rejected claims 1-4, 7-11, 13, 15-20, and 23 under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,694,273 to Kurooka et al. (hereinafter "Kurooka"). The Examiner rejected claim 5 under 35 U.S.C. § 103(a) as being unpatentable over Kurooka in view of U.S. Patent Publication No. 2004/0086274 to Wan et al. (hereinafter "Wan"). The Examiner rejected claim 6 under 35 U.S.C. § 103(a) as being unpatentable over Kurooka in view of Wan and further in view of U.S. Patent No. 5,822,094 to O'Sullivan et al. (hereinafter "O'Sullivan"). The Examiner rejected claim 12 under 35 U.S.C. § 103(a) as being unpatentable over Kurooka. Applicant respectfully traverses the rejections.

The Examiner allowed claim 22. The Examiner objected to claim 14 as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Applicant appreciates the Examiner's identification of allowable subject matter in claims 5 and 14.

### **Section 112 Rejection**

Claim 21 stands rejected as failing to comply with the enablement requirement of § 112, first paragraph. The Examiner states that the variable "K" in the equation recited in claim 21 is not defined by the specification. The equation of claim 21 is equivalent to equation (1) found on page 24 of the specification. Additionally, the Applicant respectfully submits that one of ordinary skill in the art would be familiar with the variables in equation (1), however, in order to expedite prosecution, Applicant has amended claim 21 to remove the equation. Applicant submits that claim 21 is in condition for allowance.

Applicant : Feng Shi et al.  
Serial No. : 10/789,804  
Filed : February 27, 2004  
Page : 9 of 12

Attorney's Docket No.: 13854-065001

### Section 102 Rejections

Claim 1 stands rejected as anticipated by Kurooka. Claim 1, as amended, recites a communications device that includes an optical domain adaptive dispersion compensation module operable to provide a first dispersion compensation to a received signal having a plurality of wavelengths. The communications device also includes an electrical domain adaptive distortion compensation module that is operable to provide a second dispersion compensation to the received signal.

The Examiner states that Kurooka discloses the communications device of claim 1 at FIG. 18. Applicant respectfully disagrees. FIG. 18 illustrates an optical receiving apparatus for use in a wavelength division multiplexing transmission system. A received optical signal having a plurality of wavelengths is first compensated for chromatic dispersion using a variable dispersion compensator 5A. See FIG. 18; col. 23, lines 46-51; col. 25, lines 18-21. A wavelength division multiplexer then demultiplexes the signal into individual wavelength channels. See col. 23, lines 51-56. Each separate channel is converted into an electronic signal and undergoes a second dispersion compensation using an equalization amplifier for each channel. See FIG. 18; col. 24, lines 39-63. Thus, the second dispersion compensation process is performed on individual channels, not on a composite signal. Similarly, the other implementations shown by Kurooka in FIGS. 14, 17, and 19 each separate the received optical signal into individual wavelengths prior to performing dispersion compensation using equalization amplifiers.

In contrast, claim 1 requires both the first and second dispersion compensation to be performed on the received signal as a whole. Kurooka does not disclose or suggest a communications device in which an optical domain adaptive dispersion compensation module performs a first dispersion compensation on a received signal and an electrical domain adaptive distortion compensation module performs a second dispersion compensation on the received signal where the received signal has a plurality of wavelengths. Applicant respectfully submits that claim 1, as well as claims 2-12, which depend from claim 1, are in condition for allowance.

Applicant : Feng Shi et al.  
Serial No. : 10/789,804  
Filed : February 27, 2004  
Page : 10 of 12

Attorney's Docket No.: 13854-065001

Claim 13 stands rejected as anticipated by Kurooka. Claim 13, as amended, recites an electrical domain distortion compensation module that includes a multi-phase eye quality monitor and an equalizer circuit operable to perform dispersion compensation. The multi-phase eye quality monitor is operable to provide signal distortion measurements. Kurooka does not disclose or suggest an electrical domain distortion compensation module that includes a multi-phase eye quality monitor and an equalizer circuit operable to perform dispersion compensation.

The Examiner states that Kurooka discloses the claimed electrical domain distortion compensation module in FIG. 18 as equalization amplifier having a multi-phase eye quality monitor and equalization circuit. Applicant respectfully disagrees. The multi-phase eye quality monitor and equalization circuit in FIG. 18 is not a component of the equalization amplifier. Instead, the two components are distinct components within the optical receiving apparatus. See FIG. 18 elements 5 and 8; col. 11, lines 9-12. The disclosure of distinct components does not disclose one component as a part of the other component. Kurooka does not disclose or suggest an electrical domain distortion compensation module that includes both a multi-phase eye quality monitor for providing signal distortion measurements and an equalizer circuit for performing dispersion compensation. Additionally, as set forth above with respect to claim 1, Kurooka does not disclose or suggest an equalizer circuit operable to perform dispersion compensation on a received signal having a plurality of channels. Applicant respectfully submits that claim 13, as well as claims 14-16, which depend from claim 13, are in condition for allowance.

Claim 17 stands rejected as anticipated by Kurooka. Claim 17, as amended, recites a method of controlling an optical domain adaptive dispersion compensation module that includes measuring signal distortion of an electrical signal having a plurality of channels.

The Examiner again cites FIG. 18 of Kurooka as disclosing the signal distortion measurement of claim 17. Applicant respectfully disagrees. The section of Kurooka associated with FIG. 18 discloses a control system for a variable dispersion compensator. After a received optical signal is separated into individual wavelength channels by the wavelength division multiplexer, the waveform of a pair of separated channels are provided to a control section as measured by a monitor circuit. See col. 24, lines 1-13. The difference between the two

Applicant : Feng Shi et al.  
Serial No. : 10/789,804  
Filed : February 27, 2004  
Page : 11 of 12

Attorney's Docket No.: 13854-065001

waveforms is compared to measure signal distortion. *See* col. 24, lines 10-24. The control section then transmits a control signal to the variable dispersion compensator based on the measured signal distortion. *See* col. 24, lines 24-32.

Kurooka does not disclose or suggest measuring signal distortion of an electrical signal having a plurality of channels, as required by claim 1. Instead, the structure disclosed in FIG. 18 of Kurooka includes a separate equalization amplifier for providing dispersion compensation and a monitor circuit for measuring a waveform of an individual channel. The measured waveform is then sent to a control section to measure signal distortion. Kurooka monitors individual channels of a previously separated optical signal having a plurality of wavelengths. Kurooka does not disclose or suggest measuring signal distortion of an electrical signal having a plurality of channels. Applicant respectfully submits that claim 17, as well as claims 18-20, which depend from claim 17, are in condition for allowance.

Claim 23 stands rejected as anticipated by Kurooka. Claim 23, as amended, recites a method of blind channel initialization that includes collecting a set of error measurements corresponding to different permutation of elements belonging to at least one tap-weight vector. The method also includes selecting a permutation of the element of the at least one tap-weight vector corresponding to a minimum collected error measurement.

The Examiner states that Kurooka disclose the method recited in claim 23 at col. 22, line 13 to col. 23, line 13. Applicant respectfully disagrees. The cited section discloses the structure and operation of the optical receiving apparatus shown in FIG. 17. However, the cited section does not include any disclosure or suggestion of a tap-weight vector. Thus, the cited section of Kurooka fails to disclose or suggest the collection of error measurements corresponding to different permutations of elements belonging to at least one tap-weight vector. Furthermore, the cited section of Kurooka does not disclose or suggest selecting a permutation of the elements of the tap-weight vector corresponding to a minimum collected error measurement. Applicant respectfully submits that claim 23 is in condition for allowance.

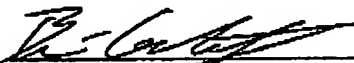
Applicant : Feng Shi et al.  
Serial No. : 10/789,804  
Filed : February 27, 2004  
Page : 12 of 12

Attorney's Docket No.: 13854-065001

Applicant requests that all pending claims be allowed. Please apply any charges or credits to deposit account 06-1050.

Respectfully submitted,

Date: 16 September, 2005



Brian J. Gustafson  
Reg. No. 52,978

Fish & Richardson P.C.  
500 Arguello Street, Suite 500  
Redwood City, California 94063  
Telephone: (650) 839-5070  
Facsimile: (650) 839-5071

50299241.doc